

Prediction and Control of the Vibroacoustic Environment During a Launch Sequence, Phase I

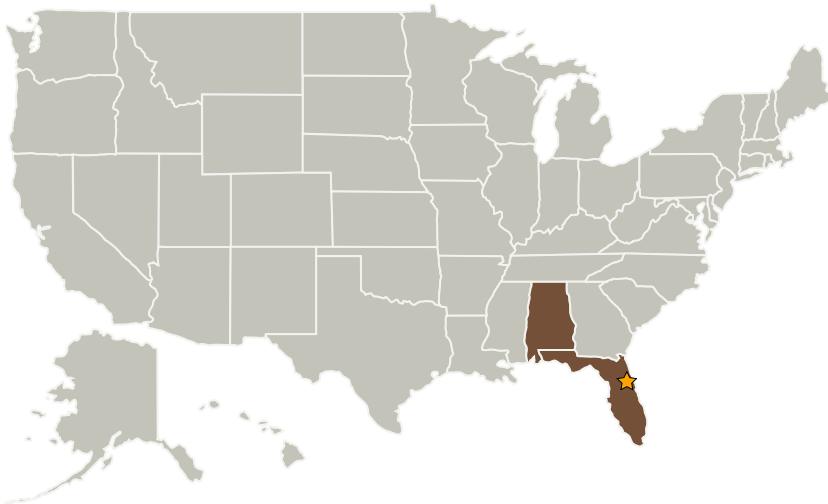
Completed Technology Project (2006 - 2006)



Project Introduction

The complexity of the current launch platforms makes their maintenance and operation very costly. In order to successfully design the next generation platforms, it is necessary to understand the complex, multi-disciplinary environments that exists during a launch sequence. The proposed research and development effort will use state of the art techniques in the various fields involved to compute the vibroacoustic environment during launch. The physical insight gained from these models will help guide the design of a new cost-effective launch platform. In particular, the problem of unsteady turbulent flows will be addressed using a newly developed turbulence modeling approach known as partially averaged Navier-Stokes (or PANS). Using PANS nearfield results, the acoustic farfield will be obtained through the use of acoustic analogies. In addition, various passive and active control techniques will be assessed to effectively reduce noise levels in the vicinity of the launch platform.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Kennedy Space Center (KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Frendi Research Corporation	Supporting Organization	Industry	Madison, Alabama



Prediction and Control of the Vibroacoustic Environment During a Launch Sequence, Phase I

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Prediction and Control of the Vibroacoustic Environment During a Launch Sequence, Phase I

Completed Technology Project (2006 - 2006)



Primary U.S. Work Locations

Alabama

Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
 - └ TX15.1 Aerosciences
 - └ TX15.1.4 Aeroacoustics